Z-67 TEST PROCEDURE GUIDE

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WARNING : THE Z-67 IS A VERY DELICATE PIECE OF EQUIPMENT. IT CANNOT BE MOVED OR BUMPED WHILE POWER IS APPLIED OR FOR 2 MINUTES AFTER THE POWER HAS BEEN TURNED OFF. PLEASE FOLLOW THESE WARNINGS OR IRREPAIRABLE DAMAGE TO THE HARD DISK DRIVE MAY OCCUR. SECOND, THE UNIT MUST *NOT* BE OPERATED WITH THE TOP REMOVED. WITHOUT THE TOP COVER, THE HARD DISK DRIVE WILL NOT RECEIVE SUFFICIENT AIR FLOW TO STAY COOL. AND LAST, THE AMBIENT AIR TEMPERATURE AROUND THE UNIT MUST *NOT* EXCEED 90 DEGREES FAHRENHEIT DURING IT'S OPERATION.

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NOTE: ALL MEASUREMENTS WERE TAKEN USING A LEADER LDM-851 DIGITAL VOM. ALLOW ONLY 10% TOLERANCE DIFFERENCE IN METER READING BECAUSE THE POWER SUPPLY USED IS WELL REGULATED. EXCESSIVE VOLTAGE MAY DAMAGE UNIT.

PARTITION PROCEDURE

The following instructions describe the procedures for installing a Z-67. These procedures assume a basic understanding of CP/M and Z-89/90 operation. With that in mind, here is how to get your Z-67 up and running quickly and with a minimum amount of effort:

1. Install the Z-89-67 into the Z-89 or Z-90 in accordance with the instructions in the Z-89-67 installation manual. Set Sw501, the dip switch on the CPU board, for a Z-67 primary boot. (Refer to page 9 for switch settings and jumper configuration.)

2. Check the cable (134-1219) that connects the Z-89-67 controller card to the back of the Z-89/90 for proper number one pin position.

3. Flip the floppy disk (right hand) write protect switch on the Z-67 to the up position.

4. Insert the H/Z-67 Diagnostic/Partitioning Utilities Disk(HCB-867-2) into the Z-27 floppy disk drive.

5. Boot the system from unit one (boot1). To do this, type *B* for boot. Then press number *1* followed by a carriage return to cause the system to access the floppy disk instead of the Winchester disk.

6. When the system displays the Partition/Preparation Utility Menu, select option *B*, the system will run PREP67. This is a diagnostic utility and will take about an hour to complete. (Note:PREP67 has been run by the factory proir to shipment. This step may be skipped over, unless indicated by the partition program)

7. When the system displays the Partition/Preparation Utility Menu, select option *A*, this will take you into the partitioning section of the utility program.

8. When the Winchester Disk Partition Utility is displayed on the screen, Press *A* for all CP/M to be partitioned.

9. Press <CR> in response to "Allocation Correct ..... <NO>?"

10. The main menu will reappear. This time select option *H* for user defined options.

11. Press *O* to change set option.

12. "Operating System ID (S,U,A-P) <U> ?", Will be displayed. Select *B*.

13. "Operating System Name < >?", Enter in *CPM1* <CR>.

14. Press *P* for set partition.

15. "[CPM1] From Region ?", Type *C0* <CR>.

16. "[CPM1] To Region ?", Type *F3* <CR>.

17. "[CPM1] <DONE> ?", Type <CR>.

18. Press <CR> to Display partition format screen. Check to see if partition display is formated correctly.

19. Press *S* to perform the partition on the disk.

20. Enter *<CR>* for the default boot string.

21. Enter *<CR>* to printout option.

22. Partition is now complete. Proceed to Makebios.Com, Sysgen.Com Assign.Com.

Note: Prior to shipment from the HEATH/ZENITH DATA SYSTEM'S factory, the PREP67 utility is run on the Winchester Disk Drive. The Winchester drive, as received from the factory or store has been initialized, checked and prepared for operation with the PREP67 Utility. You do not need to run the PREP67 utility unless the Partition utility detects an error requiring PREP67 to be run.

To run the PREP67 Utility, insert the H/Z-67 Diagnostic/Partitioning Utilities Disk (this disk is supplied with the Z67 Drive Unit) into the Seimens floppy drive and press *B1*. This will activate the floppy drive. The drive light will come on and go off several times for about one or two minutes. This is normal. After the disk has finished booting up the following menu will be displayed.

H/Z-67 PARTITIONING-PREPARTION MENU

A-WINCHESTER DISK PARTITIONING UTILITY
B-WINCHESTER DISK DIAGNOSTIC/PREPARATION UTILITY
C-EXIT

SELECTION ?: (RESPOND WITH *B*<CR>)
'After several seconds the following menu will appear.'

PREP67 FOR THE WINCHESTER DISK
COPYRIGHT (C) 1981 HEATH/ZENITH DATA SYSTEMS

THIS ROUTINE IS USED TO :

1. INITIALIZE THE WINCHESTER DISK
2. PERFORM MEDIA CHECK ON THE WINCHESTER DISK SURFACE
3. INITIALIZE TABLES FOR USE WITH THE PARTITIONING UTILITY, PART

PREP67 IS A STANDALONE UTILITY. IT WILL DESTROY ALL FILES ON THE WINCHESTER DISK.

DO NOT USE PREP67 UNTIL YOU HAVE MADE A BACKUP OF THE FILES CURRENTLY ON THE WINCHESTER DISK.

PROCEED (YES/NO)? (RESPOND WITH *YES*)

PLEASE TYPE P TO PROCEED (RESPOND WITH THE LETTER *P* <CR>)
'PREP67 will take about an hour to run and then it will display the main menu.'

After the Prepratition Utility has displayed the main menu, then proceed to the Partition Utility.

This is a quick and simple way of making BIOS. In this version We will be using 3 5 1/4 inch hard sector drives. Using back up copies of the CPM Distribution Disk. Boot in A: the Distribution Disk #I. In drive B: install Distribution Disk # III, and in C: install a blank formated disk.

```
>*SUBMIT B:MAKEBIOS C:NEWBIOS B:*        <CR>

>MAKEBIOS 1 C:NEWBIOS

        BIOS SELECTION MENU

A -- H17 ONLY
B -- H37 ONLY
C -- H47 ONLY                          Displayed on the CRT SCREEN
D -- H67 ONLY
E -- H17 AND H37
F -- H17 AND H47
G -- H17 AND H67
H -- H37 AND H47
I -- H37 AND H67
J -- H47 AND H67

ENTER IN SELECTION : *G*         <CR>  'G is the selected option for H17
                                        and H67'
A>ASM BIOS.AAZ
CP/M ASSEMBLER - VER 2.0
1560
02EH USE FACTOR
END OF ASSEMBLY

A>REN BIOS.HX0=BIOS.HEX                 'Displayed on the CRT SCREEN.
A>MAKEBIOS 2 C:NEWBIOS                   This will take about 15 min.

A>ASM BIOS.AAZ
CP/M ASSEMBLER - VER 2.0
1660
02EH USE FACTOR
END OF ASSEMBLY

A>REN BIOS.HX1=BIOS.HEX
A>PREL BIOS C:NEWBIOS


A>MAKEBIOS 3 C:NEWBIOS

MAKEBIOS FUNCTION COMPLETE
```

A>*MOVCPM17 64 C:NEWBIOS* <CR>. 'make the new system bios configured for 64K'

MOVCPM17 VER 2.2.03

CONSTRUCTING 64K CP/M ver 2.2
READY FOR "SYSGEN" OR
"SAVE 38 CPM64.COM"

A>*SYSGEN* <CR>. 'SYSGEN the new disk'

SYSGEN VER 2.2.03

SOURCE DRIVE NAME (OR RETURN TO SKIP): *RETURN*

DESTINATION DRIVE NAME (OR RETURN TO REBOOT): *C*

DESTINATION ON C, THEN TYPE RETURN *RETURN*

FUNCTION COMPLETE

DESTINATION DRIVE NAME (OR RETURN TO REBOOT): *RETURN*

A>*REN C:BIOS.SYS=C:NEWBIOS* 'Set to BIOS.SYS'

A>*STAT C:BIOS.SYS $R/O* 'Set to read only'

A>*STAT C:BIOS.SYS $SYS* 'Set to System'

A>*PIP C:=A:CONFIGUR.COM* 'Copy Configur on to disk'

A>*PIP C:=:A:STAT.COM* 'Copy Stat on to disk'

A>*PIP C:=A:PIP.COM* 'Copy Pip on to disk'

Remove Distribution Disk III in dive B: and install Distribution Disk II

A>*PIP C:=B:MOVCPM67.COM* 'Copy Movcpm67 to disk'

A>*PIP C:=A:SYSGEN.COM* 'Copy Sysgen to disk'

A>*PIP C:=A:ASSIGN.COM* 'Copy Assign to disk'

A>*PIP C:=A:FORMAT.COM* 'Copy Format to disk'

This disk is now your new systems disk. This disk is now able to access the Z-67 and the Z-89/Z-90 through the Hard sector disk drive. Be sure to make back up copies of the new working disk.

A>*ASSIGN ?* <CR>.

```
                          MAXIMUM
        PARTITION NAME  OCCURRENCE NUMBER
-------------------------------------------------------
              CPM               0
              CPM1              0
```

'This is displayed by the computer telling you how the partition is set up'

```
              ----------------------------------------
              |
A>*ASSIGN D:=CPM;0* <CR.
          ^      ^
          |      ----------------------------------------
          ---------------------------------------------
```

PARTITION NAME

OCCURRENCE NUMBER
LOGICAL DRIVE NAME

A>*ASSIGN* <CR>.

D: = CPM <----------

'This is the assigned partition

A>*FORMAT* <CR>.

```
FORMAT Version 2.03
This program is used to initialize a disk.
All information currently on the disk will be destroyed.
Is that what you want? (y/n):   "Y"


Which drive do you wish to use for this operation?: *D*


Put the disk you wish to formatted in drive D:
Press RETURN to begin.          *<CR>*


FORMATING PARTITION
```

A>*SYSGEN* <CR>. 'SYSGEN the new disk'

SYSGEN VER 2.2.03

SOURCE DRIVE NAME (OR RETURN TO SKIP): *A*

DESTINATION ON A, THEN TYPE RETURN *RETURN*

COPY BIOS.SYS (Y/N): *Y*

DESTINATION DRIVE NAME (OR RETURN TO REBOOT): *C*

DESTINATION ON C, THEN TYPE RETURN *RETURN*

FUNCTION COMPLETE

DESTINATION DRIVE NAME (OR RETURN TO REBOOT): *RETURN*

A>*MOVCPM67* 'Size up memory'

MOVCPM67 VER 2.2.03

CONSTRUCTING 64K CP/M ver 2.2
READY FOR "SYSGEN" OR
"SAVE 38 CPM64.COM"

A>*SYSGEN* <CR>. 'SYSGEN the new disk'

SYSGEN VER 2.2.03

SOURCE DRIVE NAME (OR RETURN TO SKIP): *RETURN*

DESTINATION DRIVE NAME (OR RETURN TO REBOOT): *C*

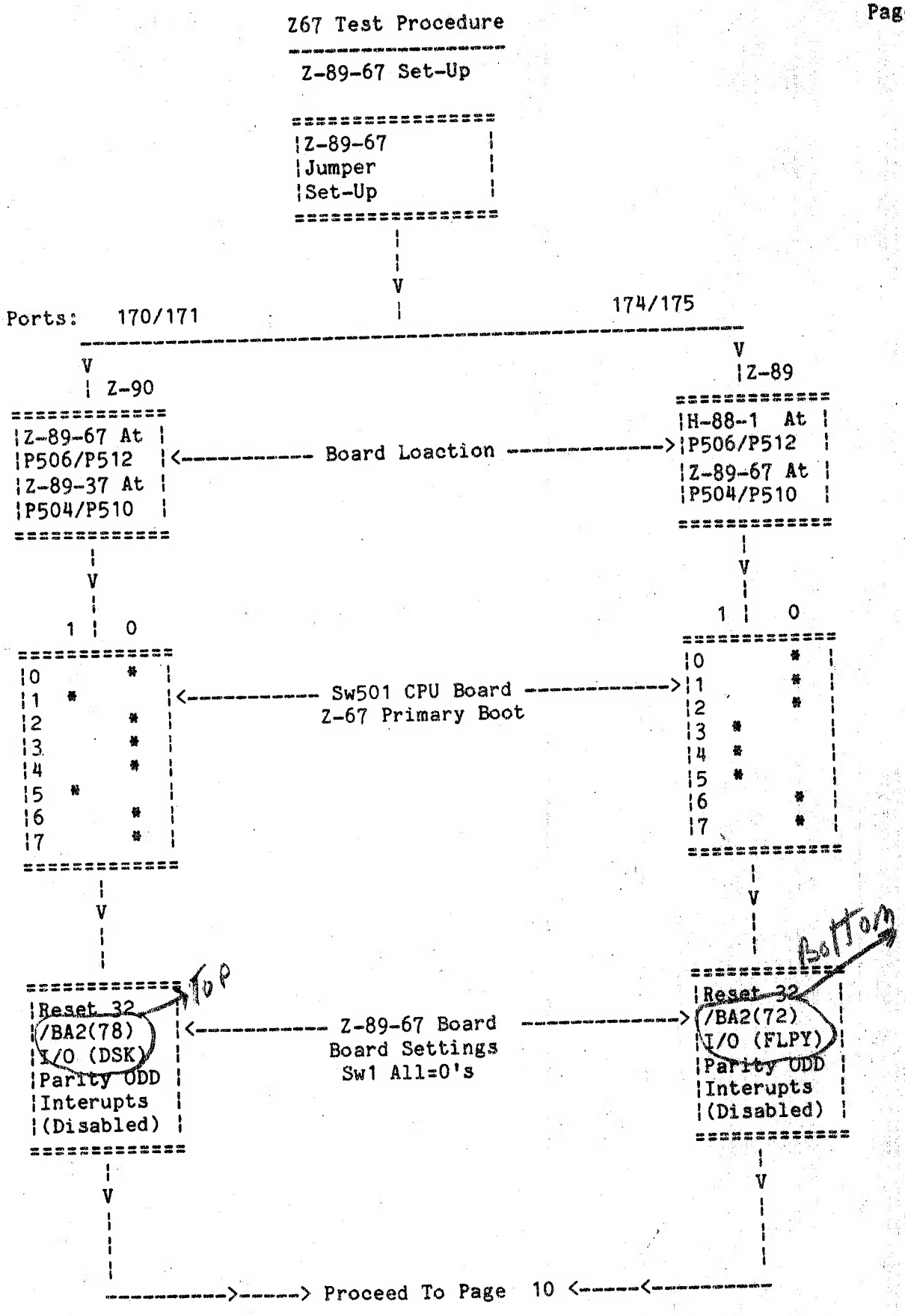
DESTINATION ON C, THEN TYPE RETURN *RETURN*

FUNCTION COMPLETE

DESTINATION DRIVE NAME (OR RETURN TO REBOOT): *RETURN*

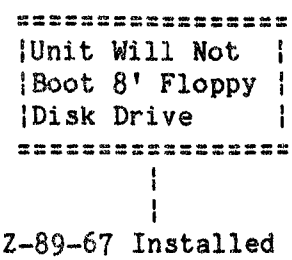
A>PIP D:=A:*.* (this is to be type followed by a <CR>.)
'Copy all files over to the Z-67'

This completes the procedure for making the Z-67 Bootable



Note: The dip switch on the Z-89-67 controller card SW1 is not used.

Z-89-67 And DTC Controller Checkout Routine



After the Z-67 has been installed to the Z89/Z90 Computer the following Program can be keyed into the computer via the computers monitor. This routine will check out the status register of the DTC Controller card installed internally in the Z-67. If this program displays NOT OK !" then the problem can be in one of three different area's. First check to see that the cables are correctly installed either internally in the computer or between the computer and the Z-67. The next area of difficulty can be in the Z-89-67 Controller Card. The final area can be with the DTC Controller Card Loacated internally in the Z-67.

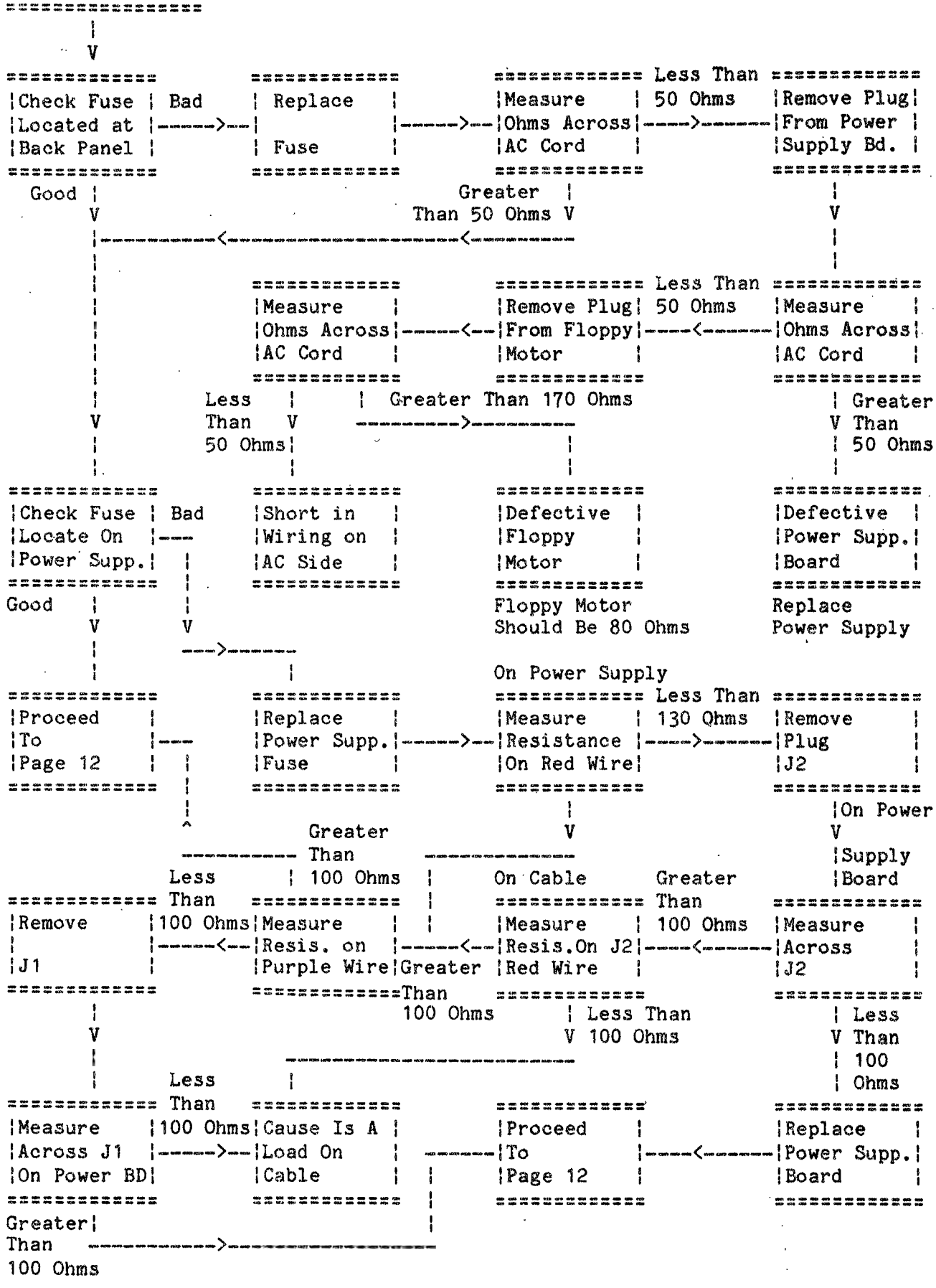
(1). Turn on both the computer and the Z-67 units.
(2). The H: will Appear in the upper left hand corner.
(3). Press the *S* key and the word Substitute will be completed.
(4). Enter *060000* followed by a <CR>.
(5). Enter in the correct column of numbers followed by a <SPACE>.
(6). After the last entry hit a <CR>.
(7). The H: will appear again. Press 'S'key again and the word Substitute will be completed.
(8). By pressing the <SPACE BAR> you can double check what you have entered.
(9). After the last entry hit a <CR>.
(10). The H: will appear again. Press the *G* key and GO will be completed.
(11). Enter *060000* <CR>. and the program will run itself.

If everthing is connected properly "OK !" will scroll on the screen. If there is any type of problem "NOT OK !" will scroll on the screen.

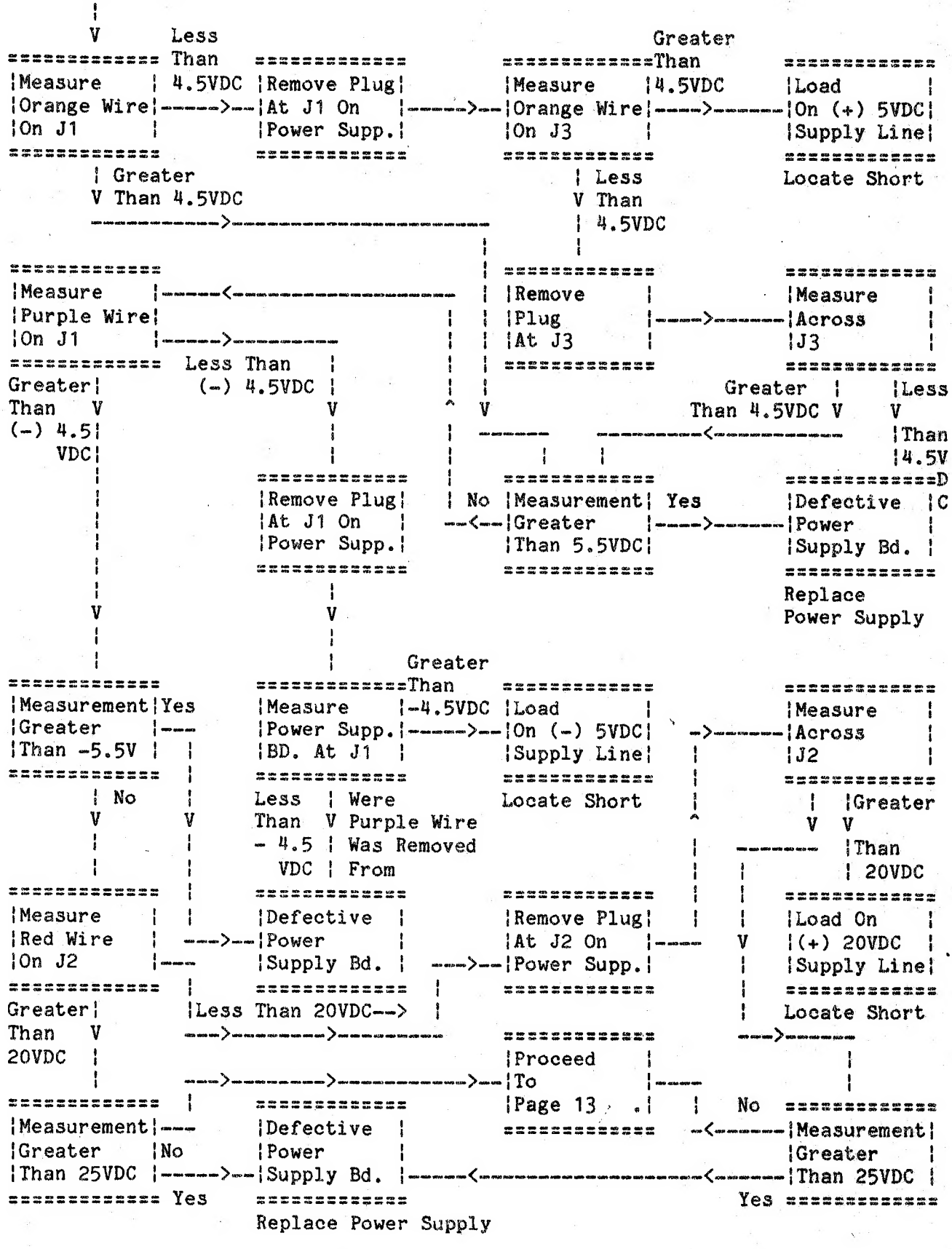
Install in place of '***' "171" for port 170/173 or "175" for port 174/177.

Address	Data	Address	Data	Address	Data	Address	Data	Address	Data
060000	076	060015	036	060032	110	060047	315	060064	057
060001	020	060016	060	060033	312	060050	100	060065	060
060002	323	060017	076	060034	044	060051	006	060066	116
060003	***	060020	110	060035	060	060052	303	060067	117
060004	315	060021	323	060036	041	060053	000	060070	124
060005	055	060022	***	060037	066	060054	060	060071	040
060006	060	060023	315	060040	060	060055	076	060072	000
060007	257	060024	055	060041	315	060056	255	060073	117
060010	333	060025	060	060042	100	060056	075	060074	113
060011	***	060026	257	060043	006	060060	376	060075	040
060012	376	060027	333	060044	041	060061	000	060076	041
060013	100	060030	***	060045	073	060062	310	060077	012
060014	302	060031	376	060046	060	060063	303	060100	015
								060101	000

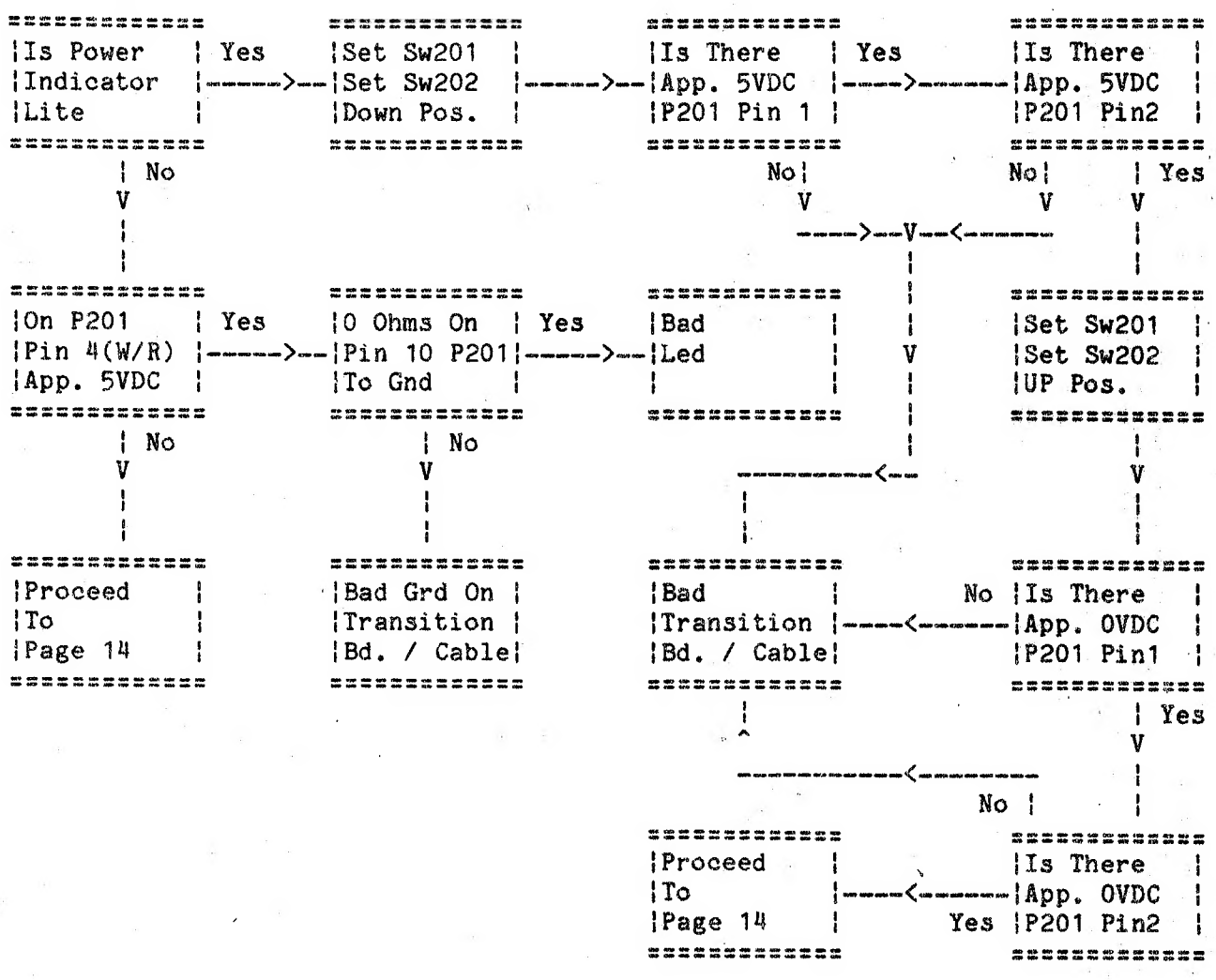
General Checkout



Power Supply Board

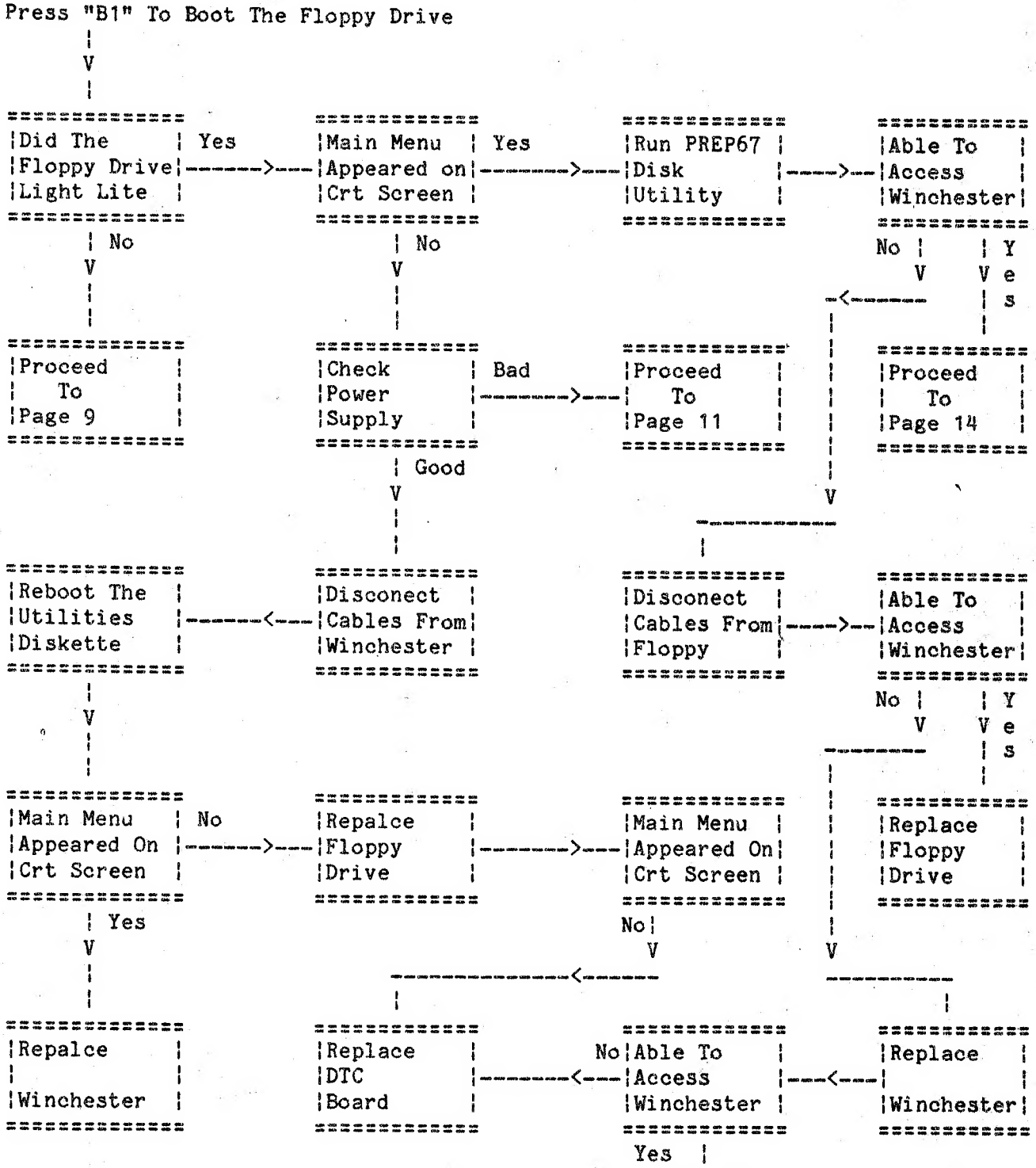


Write Protect Board



Z67 DISK DRIVE CHECKOUT PROCEDURE

The H/Z67 Software Utilities Diskette can be used as a diagnostic disk for the Winchester and 8 inch floppy. This procedure will help you to determine which disk drive is defective. Place the Software Utilities disk in the floppy drive. (The H/Z67 Software Utilities is supplied with the H/Z67 Unit.)



Z67 DISK DRIVE CHECKOUT PROCEDURE

If no errors are encountered during the PREP67 process,control is transferred to the main menu. If no errors are encountered during the Prep67 and the Partitioning Utilities, then the Z67 unit is up and running.

PREP67 ERROR MESSAGES

If an error is encountered while running PREP67, one of the following error messages will be displayed at your terminal:

1. Wrong drive type.
2. Drive is not ready.
3. Error during formatting of the drive.
4. Track 0 contains bad sector(s).
5. Bad sector count exceeded for this drive.
6. Request sense status error.
7. Status parity error.
8. Host adapter parity error.
9. Completion byte is non zero.
10. Internal error.

followed immediately by,

Test Aborted

If you encounter an error, verify that the drive type and hardware setting on the disk controller board are set correctly.